MORASH, MELANIE

From: MORASH, MELANIE
Sent: Tuesday, May 12, 2015 1:17 PM
To: Heather.OCleirigh@amd.com
Cc: Calhoun, Michael; pbennett@haleyaldrich.com; Ledbetter, Ray; Hadlock, Holly
Subject: AMD 901-902 - EPA Comments on Quarterly ISB Progress Report, July-September 2014
Attachments: 05-12-15_EPA Comments_AMD 901 ISB Report.pdf

Good afternoon, Heather and Mike,

Attached please find EPA's comments on your quarterly in-situ bio progress report. A response within 45 days would be appreciated. Please let me know if you have any questions.

Regards,

Melanie Morash

Melanie Morash, Project Manager
California Site Cleanup Section I, Superfund Division

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morash.melanie@epa.gov

From: Calhoun, Michael [mailto:MCalhoun@haleyaldrich.com]
Sent: Wednesday, November 05, 2014 10:53 AM
To: MORASH, MELANIE
Subject: FW: Quarterly ISB Progress Report, July-September 2014, Former 901/902 Thompson Place Site

Hi Melanie,

I just got back into the office after a week away, and realized that my email to you below (sent on Thursday Oct. 30) was bounced back to me! My apologies for the delay getting this to you. Please feel free to contact me directly if you have any questions.

Have a great day,
Mike

From: Calhoun, Michael
Sent: Thursday, October 30, 2014 7:03 PM

To: morash.melanie@epa.gov
Cc: Stringer, Brett; Bennett, Peter; Zlotoff, Michael
Subject: Quarterly ISB Progress Report, July-September 2014, Former 901/902 Thompson Place Site

Hi Melanie,

On behalf of Advanced Micro Devices, Inc (AMD), please find attached the Quarterly In-Situ Bioremediation (ISB) Progress Report for the Former 901/902 Thompson Place Site in Sunnyvale, CA. This progress report covers the period of July to September 2014.

Since the EPA has recently assumed oversight for the Triple Site, these progress reports may be new to you - we had previously submitted them on a quarterly basis to the Water Board to summarize the activities and status of the ISB system located at the Site for each quarter, and they are intended to be brief updates with data tables. A more detailed description of the ISB system, analysis of the quarterly performance monitoring results, and recommendations for future ISB activities, will be included in our "Combined Annual Groundwater Monitoring Report and In Situ Bioremediation Program Report", which will be submitted to the EPA in January 2015.

Please feel free to contact me if you have any questions, or require additional information.

Thanks,
Mike

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Review Comments ISB Program (July through September 2014 Progress Report

- The Report provides a Table listing water level measurements obtained from the August 2014 sampling episode; however the Report does not provide a graphical representation (Figure) showing either contour gradients nor an interpretation of groundwater flow. Similarly, the Report provides Tables summarizing the Contaminants of Concern (COC) identified from both the May and August 2014 sampling events; however provides no figure depicting the aerial extent of the contaminant plume(s) using sufficient isoconcentration contours for the COCs identified. Presenting graphically this most recent data would be an extremely helpful tool to assess the movement and stability of the plume(s) following the application of soluble donor at the site in early 2014.

- Although the Report summarizes the groundwater analytical results in tabular form, critical field groundwater monitoring parameters (DO, Redox, pH) appear missing. Consistent substrate and pH monitoring is vital to the overall effectiveness of the ISB program. In particular, pH data should be obtained at the time of injection and also ideally collected a couple of weeks following injection to see how the donor affects the pH levels. In order to sustain a complete dechlorination of TCE, an optimal pH range of (6.5-8.0) across the site is preferred. Unfortunately, if pH is not within the ideal range the site may experience Cis-DCE accumulation and incomplete dechlorination.

- The Report notes Haley & Aldrich is assessing the future use of emulsified oils to facilitate the cleanup duration and provide an expedited transition to MNA. The primary advantages of a slow release donor like emulsified oils over the Report described fast release donor (lactate) used at the subject site include: 1) Soluble donors like sugars and lactate are usually consumed in a few weeks to a few months. Emulsified oil typically lasts considerably longer often times in years rather than weeks/months with a single injection. 2) Soluble donors like lactate move with groundwater flow and may not remain in the treatment area where the contaminants are present long enough to be effective at fast flow sites. Emulsified oil is mobile during injection but is then retained on soil surfaces such that the oil remains in the targeted treatment area thereby slowly releasing soluble fermentation products.

- The Report also notes depleted TOC concentrations at some of the well locations. The Report documents injection of high concentrations of soluble donor (lactate) being performed at the site in early 2014. Lactate being a soluble donor dissipates quickly normally within a month or two month timeframe. In comparison, with slow release donors (emulsified oils) an optimal TOC level (20-200mg/l) can be maintained thereby keeping a consistent microbial activity. It is highly recommended that a gene probe analysis in selected monitoring wells be performed. This analysis would confirm if the microbes are naturally present and whether or not the site might benefit from bioaugmentation.